1 9626/11/M/J/17/Q2

Tick the **four** statements which are true about the use of expert systems.

	✓
A knowledge base is a key component of an expert system.	
Experts do not need to make a judgement; they just accept the results of the expert system.	
The user interface is used for both input and output.	
The rules base can contain IF… THEN statements.	
The inference engine searches the user interface to find possible solutions.	
An expert system is often used in car driving simulators.	
An expert system is not as accurate as a single expert would be.	
A knowledge engineer is employed to create an expert system.	
An expert system never needs updating.	
Expert systems always come up with exact solutions.	

[4]

2 9626/13/O/N/17/Q13

When an expert system is used to suggest solutions to problems the inference engine uses a form of reasoning involving forward chaining or backward chaining.

Explain the differences between forward chaining and backward chaining by describing both terms.

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..... [6]

STUDENTS RESOURCE

CamScanner

9626/11/M/J/18/Q6

3 Many organisations use expert systems as a diagnostic tool.

Describe, in detail, the components of an expert system.

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STUDENTS RESOURCE

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4 9626/12/M/J/18/Q9

A medical centre uses expert systems to help diagnose illnesses.

Explain how the components of an expert system would be used to produce the diagnosis of an illness.

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STUDENTS RESOURCE

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9626/12/M/J/19/Q9

5 An expert system consists of many components.

Describe how the knowledge base is used to interact with the other components when an expert system is used to solve a problem.

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6 9626/11/O/N/19/Q10

Expert systems often use a mixture of forward chaining and backward chaining to determine the probable solution to a problem.

Describe the terms:

(a) Forward chaining.

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(b) Backward chaining.

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CamScanner

9626/12/O/N/19/Q4

Doctors often use expert systems to help them make a diagnosis.

Without describing its components explain how an expert system helps the doctor come to a decision regarding the diagnosis.

[4]

9626/12/M/J/20/Q14

The inference engine within an expert system uses a form of reasoning.

Explain what this form of reasoning consists of.

[6]

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9 9626/11/O/N/20/Q4

LI has just discovered his printer is not responding when he sends a document to print.

Describe how the following components of an expert system are used to diagnose faults with the printer.

(a) User interface

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(b) Inference engine

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(c) Knowledge base

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9626/11/O/N/21/Q12

A computer repair company employs a technician who uses an expert system to diagnose problems with printers. The company also employs a knowledge engineer.

(a) Explain how the technician would interact with the expert system.

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(b) Explain the role of the knowledge engineer.

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STUDENTS RESOURCE

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(b) Explain how this insurance expert system would be used by the consultant and how it would assess the risk.

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15 **9626/01/SP/22/Q1(c)**

The performance of supercomputers and mainframe computers can be measured in a number of ways.

Explain how each of the following is used to measure a computer's performance.

(c) Fault tolerance

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9626/01/SP/22/Q6

16 Expert systems are often used to help solve problems. They use forward chaining, backward chaining or a mixture of both.

Compare the use of forward chaining with the use of backward chaining.

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